ABSTRACT

A microbubble preparation formed of a plurality of microbubbles comprising a first gas and a second gas surrounded by a membrane such as a surfactant, wherein the first gas and the second gas are present in a molar ratio of from about 1:100 to about 1000:1, and wherein the first gas has a vapor pressure of at least about (760-x) mm Hg at 37° C., where x is the vapor pressure of the second gas at 37° C., and wherein the vapor pressure of each of the first and second gases is greater than about 75 mm Hg at 37° C.; also disclosed are methods for preparing microbubble compositions, including compositions that rapidly shrink from a first average diameter to a second average diameter less than about 75% of the first average diameter and are stabilized at the second average diameter; kits for preparing microbubbles; and methods for using such microbubbles as ultrasound contrast agents